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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,360	09/09/2003	Joseph Bibb Cain	GCSD-1466 (51332)	2105

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ALLEN, DYER, DOPPELT, MILBRATH & GILCHRIST P.A.
1401 CITRUS CENTER 255 SOUTH ORANGE AVENUE
P.O. BOX 3791
ORLANDO, FL 32802-3791

EXAMINER

NGUYEN, HANH N

ART UNIT PAPER NUMBER

2668

DATE MAILED: 12/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/658,360

Applicant(s)

CAIN ET AL.

Examiner

Hanh Nguyen

Art Unit

2662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

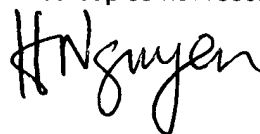
Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.



HANH NGUYEN
PRIMARY EXAMINER

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 9/26/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 6-13, 15-21, 23-31, 33-36, 38-40 and 42 are rejected under 35 USC 103(a) as being unpatentable over Bahl (Pat. 6,629,151 B1) in view of Ciscun et al. (US Pat. 6,832,249 B2).

In claims 1, 11, 20, 28, 34 and 39, Bahl discloses a mobile ad hoc network (MANET) (wireless network 118, fig.3, col.16, lines 5-15) comprising: a plurality of mobile nodes (portable computers 120, 130, see fig.3), each comprising a wireless communications device (see fig.1, wireless network interface 53/ wireless modem 54) and a controller (processing unit 21, fig.1). See col.2, lines 60-62, col.3, lines 58-67 and col.16, lines 5-22. The controller operating in accordance with a multi-layer protocol hierarchy for (processing unit 21 executes programs modules comprising application programs 36, program modules 37, program data 38, see col.3, lines 27-35 & col.4, lines 5-25, see fig.2).

at an upper protocol layer, establishing a quality-of-service (QoS) threshold (application layer 100 supports software applications and serves users, see fig.2);

at at least one intermediate protocol layer below upper protocol layer (session layer 104, transport layer 106, network layer 108, and a data link layer 110, see fig.2) , selecting at least one

route for transmitting data to at least one destination mobile node based upon the QOS threshold, (network layer 108 defines address and routes data across network to destination, decides which physical paths the data should take, given network condition and priority of service, see fig.2, col.4, lines 35-40); and determining whether a QOS metric (signal power) has falls below the QOS threshold (see col.8, lines 52-65);

at a lower protocol layer below the at least one intermediate protocol layer (physical layer 112, Mac sublayer, logical link control (LLC), cooperating with said wireless communications device to determine the QOS metric for the at least one selected route (determining signal threshold as the user moving from one base station to another, col.8, lines 50-65), transmit data to the at least one destination mobile node via the at least one selected route (physical layer 112, fig.2, col.4, lines 53-56) and adjust signal transmission power based upon a determination that the QOS metric (signal power) has fallen below the QOS threshold (see col. 9, lines 1-15). Bahl does not disclose establishing a QOS threshold from among a plurality of QOS thresholds based upon a type of given data to be transmitted to at least one destination node.

Ciscon et al. discloses, in fig.2, an application layer 204 operating in a network element 304 (fig.3) is monitored by a control system 300 (see col.9, lines 10-30). A QOS threshold is established (network monitor 308 (fig.3) defines error seconds threshold such as a maximum of 44 bit errors have occurred, col.10, lines 12-25) from among a plurality of different QOS thresholds (error seconds, packet loss rate, transmission time relate to latency, jitter, bandwidth throughput, etc., see col.10, lines 5-12) based upon a given type of data (time sensitive data, col.9, lines 43-50) to be transmitted to at least one destination node (sending to network element 314, fig.3.) Another type of data sent to a destination node is media data (see col.11, lines 15-

20). Therefore, it would have been obvious to apply the QOS thresholds of Ciscen et al. into the Bahl 's protocol layers in order to establish a QOS threshold for each respective data type to be transmitted to a destination node. With the combination, there would be no errors occurred during the transmission.

In claims 2, 3, 12, 29, 30 and 35, Bahl discloses at the lower protocol layer, said controller also cooperates with said wireless communications device to adjust signal transmission gain (transmission power) in a desired direction based upon a determination that the QOS metric (transmission power) has fallen below the QoS threshold (increasing transmission power as the computer 120 moving away from base station and reducing transmission power as the computer 120 moving toward the base station and still level of quality connection, see col.9, lines 1-15).

In claims 4, 13, 21, 31, 36 and 40, Bahl discloses at the at least one intermediate protocol layer, said controller encodes data prior to transmission; and wherein said controller also adjusts an amount of error correction coding based upon a determination that the QOS metric has fallen below the QOS threshold (see col.8, lines 15-25).

In claims 6, 15, 23, 33, 38 and 42, Bahl discloses at the lower protocol layer, said controller cooperates with said wireless communications device to transmit data at a data rate (computer 120 is designed to operate at different data rates); and wherein said controller also cooperates with said wireless communications device to adjust the data rate based upon a determination that the QOS metric has fallen below the QOS threshold (the computer 120 operates at higher rate when there are less errors in packets transmitted; and operates at a lower

data rate when there are more errors in packets transmitted, the computer 120, see col.15, lines 55-65) .

In claims 7, 16 and 24, Bahl discloses the upper protocol layer comprises an application layer (see fig.2, col.4, lines 27-32).

In claims 8, 17 and 25, Bahl discloses at least one intermediate protocol alyer comprises session layer 104, transport layer 106, network layer 108, and a radio transport layer (a data link layer 110) (see fig.2).

In claims 9, 18 and 26, Bahl discloses the lower protocol layer comprises a physical layer (physical layer 112, fig.2).

In claims 10, 19 and 27, Bahl discloses the QOS threshold is based upon at least one of available bandwidth, error rate (col.15, lines 55-65), end-to-end delay, end-to-end delay variation (see col.9, line 65 to col.10, line 8), hop count, expected path durability (deciding physical path over which the data is transmitted, see col.4, lines 36-40), and priority (priority of service, col.4, lines 39-40).

Claims 5, 14, 22, 32, 37 and 41 are rejected under 35 USC 103(a) as being unpatentable over Bahl (Pat. 6629,151 B1) in view of Ciscon et al. (US pat. 6,832,249 B2), and further in view of Berezdivin et al.(Pat.6,847,678 B2).

In claims 5, 14, 22, 32, 37 and 41, as described in Bahl, fig.1, a modem 54 (modulator means) is used to establish connection between the computer 120 and a remote computer 49. Bahl does not disclose at the lower protocol layer, said controller cooperates with said wireless communications device to modulate the data using a first modulation technique if the QOS metric is greater than or equal to the QOS threshold, and otherwise using a second modulation

technique. Berezdivin et al. discloses an ad-hoc network (col.3, lines 20-30) a multiple modulation techniques comprising TDMA modulation technique (a first modulation technique), FDMA modulation technique (a second modulation technique, col.13, lines 5-32). The TDMA and FDMA modulation techniques are selected according to requirements associated with data rate and quality of service (See col.2, lines 57-62). Therefore, it would have been obvious to one ordinary skilled in the art to use the teaching of Berezdivin et al. into Bahl in order to modulate transmitted data via the wireless modem 54 using a first modulation technique (TDMA modulation technique) if the QOS metric (data rate) is greater than or equal to the QOS threshold ; or using a second modulation technique (FDMA) otherwise.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kammer David (US Pat. 6,826,387 B1);

Larsson et al. (US pat. 6,751,200 B1);

Redi et al. (US pat. 6,621,795 B1).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Nguyen whose telephone number is 571 272 3092. The examiner can normally be reached on Monday-Friday from 8AM to 5PM. The examiner can also be reached on alternate

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor Chieh Fan , can be reached on 571 272 3042. The fax phone number for the organization where this application or proceeding is assigned is 571 273 8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hanh Nguyen

A handwritten signature in black ink, appearing to read 'HNguyen'.

December 20, 2005

HANH NGUYEN
PRIMARY EXAMINER